
Installation, configuration, and maintenance

Property Management System Interface (PMSI), package 103, requires the following additional packages:

- Controlled Class of Service (CCOS) package 81
- Background Terminal (BGD) package 99
- Room Status (RMS) package 100

PMSI has the following feature interactions:

- Message Registration and Automatic Wake Up features are not supported by the PMSI link. These features may be activated via the BGD.
- Message Waiting messages (NO LAMP or BAD LAMP) are not sent.

PMSI is mutually exclusive with the following features:

- Centralized Attendant Service (CAS)
- Coordinated Dialing Plan (CDP)
- Multi-Tenant Service

PMSI link requirements

The PMSI is a full duplex EIA RS-232-C Asynchronous Data Link (ADL) that operates under a specific message protocol and format. The link provides a channel to allow the PMS computer and a switch to exchange information. The Meridian 1 uses a serial data interface (SDI) port to connect to the PMS.

The PMS must provide an Asynchronous Data Link (ADL) that conforms to the following requirements:

Data baud rates:	110, 150, 300, 600, 1200, 2400, 4800, 9600 bps
Electrical interface:	EIA RS-232-C
Operating mode:	Full duplex
Word framing options:	1 start 8 data 1 stop 10 bits/character
Parity:	OFF
Message format:	STX message string ETX BCC STX = Start of Text ETX = End of Text BCC = Block Character Check

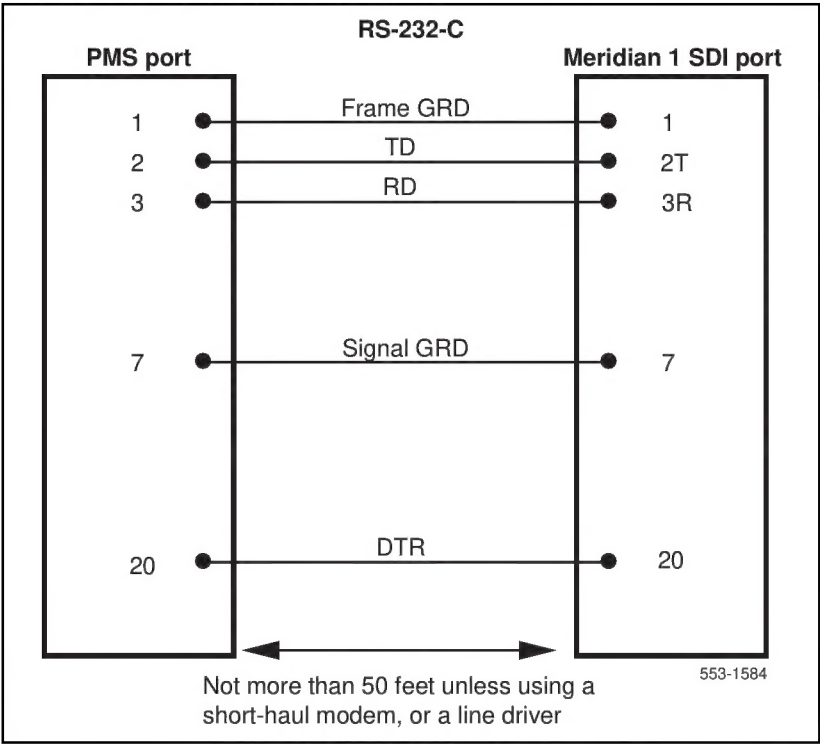
The Block Character Check (BCC) is defined as being equal to the “exclusive or” of each of the 7 data bits (not including parity) of the message and the ETX. It does not include the “exclusive or” of the STX.

It is recommended that the SDI port have a data rate of 1200 baud to speed up the data swap.

If a PMS link is configured with a high baud rate, there is a chance that characters in the message could be lost. If the customer experiences transmission problems, a lower baud rate is recommended (refer to the sections “Message transmission” on page 23 and “Message retransmission” on page 23). Also, it is recommended that the PMS commands be run only during slow hours (2400-0200) to avoid overloading the system with too many PMS jobs having higher priorities.

RS-232-C cables For normal connections, RS-232-C cables, fitted with 25-pin connectors, are required. The cables must include straight-through connections between pins 1, 2, 3, 4, 5, 6, 7, 8, and 20 on the two connectors to provide RS-232-C interchange circuits AA, AB, BA, BB, and CD. Refer to the basic schematic in Figure 1.

Figure 1
Dedicated RS-232-C connector pins



PMSI installation requirements

- For setting up PMSI, use an EIA RS-232-C Asynchronous Data Link (with SDI port connecting to PMS).
- For setting up MLWU, use QPC74 RAN trunk interface cards, and a compatible Audichron HQ-1 112 continuous mode RAN machine.
- If you are using many different SDI cards, refer to *Circuit card installation and testing* to be sure the switch settings are correct for the card you are using.
- If required, define a TTY for use as a Background Terminal. Refer to *Background Terminal Facility description* for information.

PMSI Set Option commands

In order to operate a PMS, a PMS port must be assigned for RMS and the confirm option turned OFF. Therefore, a BGD is used to issue the following commands:

SEt OPTION POrt 'pmsportid' SStatus SEt

SEt OPTION COntirm OFF

PMSI Standardization

The PMSI Standardization features in X11 Release 19 and later provide the Meridian 1 with the following enhancements:

- Message retransmission
- Polling
- Message monitoring

These features are described below. Refer to the configuration section for information on how to configure these options.

Note: Upon loading X11 Release 19 and later, these features are not automatically activated. You must go into LD 17 to enable these features.

Message transmission

Prior to X11 Release 19, the Meridian 1 ignored any response returned by the PMS after sending a Room Status message to the PMS, and did not attempt to retransmit the message. As a result, the database between the PMS and the Meridian 1 could not be maintained consistently.

Message retransmission

With X11 Release 19 and later, PMSI Standardization provides the Meridian 1 with the capability to retransmit a message to the PMS. This means that whenever the Meridian 1 transmits a room message or the new polling message to the PMS, the Meridian 1 will wait for an <ACK> response from the primary PMSI port. If the Meridian 1 receives a <NAK> or does not receive any response before the predefined response timer expires, the same message will be retransmitted to the primary PMSI port.

With PMSI Standardization, the full content of the Room Status or new polling message is stored in a call register. This is whether the retransmission feature is activated or not. The call register is then linked to the PMSI output queue and transmitted on a first-in-first-out basis.

Message retransmission disabled

Message retransmission is disabled (turned OFF) when the retransmission timer (XTMR prompt) in LD 17 is set to zero (0). If message retransmission is disabled and a message is transmitted from the Meridian 1 to the PMS, the call register, where the message is stored, becomes idle immediately. The Meridian 1 ignores the response that it receives from the primary PMSI port.

Message retransmission activated

Message retransmission is activated (turned ON) when the retransmission timer (XTMR prompt) in LD 17 is set to a nonzero value. If message retransmission is activated and a message is transmitted from the Meridian 1 to the PMS, the call register, where the message is stored, does not become idle but waits for an <ACK> response from the primary PMSI port.

If the Meridian 1 receives an <ACK> from the PMS before the retransmission timer expires, the call register becomes idle. If the Meridian 1 receives a <NAK>, or does not receive any response from the PMS before the retransmission timer expires, the Meridian 1 will retransmit the message if both of the following conditions are met:

- The message has not completed its full transmission cycle. That is, the Meridian 1 has not retransmitted the same message for the predefined number of times specified in the XNUM prompt in LD 17).
- Message retransmission has not been automatically disabled. Refer to “Automatic disabling of message retransmission” below for more information.

Automatic disabling of message retransmission

If the Meridian 1 does not receive an <ACK> from the primary PMSI port after two consecutive full transmission cycles, message retransmission will be automatically disabled and the Meridian 1 performs the following actions:

- Displays a “RE-XMIT OFF” message on the maintenance TTY(s).
- Turns on the minor alarm on the Attendant Console if the option is configured in LD 17.

Until message retransmission is reenabled, further message transmission is handled in the same way as it is when message retransmission is disabled in LD 17. Refer to “Message retransmission” on page 23 for more information.

Automatic reenabling of message retransmission

After message transmission has been automatically disabled, it is automatically reenabled when the Meridian 1 receives an <ACK> from the primary PMSI port, and performs the following action:

- Displays a “RE-XMIT ON” message on the maintenance TTY(s).

Note: When message transmission is automatically reenabled, the minor alarm on the Attendant Console will not be automatically cleared, as the alarm may indicate other problems.

Polling

Prior to X11 Release 19, the Meridian 1 did not have the capability to monitor the status of the PMSI link, which is the link between the Meridian 1 and the PMS.

With X11 Release 19 and later, PMSI Standardization provides this monitoring capability by enabling the Meridian 1 to poll the PMSI link at predefined intervals.

Polling activated

Polling is activated when the polling timer (PTMR prompt) in LD 17 is set to a nonzero value. Polling is disabled when the polling timer is set to zero (0).

The polling timer is reset whenever the Meridian 1 sends a message to the PMS. When the polling timer expires, the polling message “ST PO” is automatically sent to the PMS.

Note: A polling message may be retransmitted from the Meridian 1 to the PMS in the same way that a Room Status message is retransmitted. Refer to “Message retransmission” on page 23 for more information.

Message monitoring

Prior to X11 Release 19, the Meridian 1 did not have the capability to track incoming messages from the PMS or outgoing messages to the PMS.

With X11 Release 19 and later, PMSI Standardization provides this tracking capability by enabling these incoming/outgoing messages between the Meridian 1 and the PMS to be displayed on all maintenance (MTC) TTYs on the Meridian 1.

Message-monitoring output information contains the following fields:

transmission_type msg_content time_stamp

where *Transmission_type* is a two-character field that indicates the source of the message:

PT	PMS transmitted message
PR	PMS retransmitted message
MT	Meridian 1 transmitted message
MR	Meridian 1 retransmitted message
PO	Meridian 1 transmitted polling message
PX	Meridian 1 retransmitted polling message

Msg_content is the content of the message.

You can specify the message output to be in either alphanumeric or hexadecimal format. Some examples are provided below:

Alphanumeric format

```
PT [STX] SE ST 5006 CH IN [ETX] [BCC] 12:30:32
MT [NAK] 12:30:32
PR [STX] SE ST 5006 CH IN [ETX] [BCC] 12:31:32
```

Hexadecimal format

```
PT 02 53 45 20 53 54 20 35 30 30 36 20 43 48 20 49 4E 03 1E 12:30:32
MT 95 12:30:32
PR 02 53 45 29 53 54 20 35 30 30 36 20 43 48 20 49 4E 03 1D 12:30:32
```

Time_stamp is the time when the message is sent/received by the Meridian 1.

Activating message monitoring

Activating and disabling message monitoring can be performed in two ways:

- Turning message monitoring ON in LD 37. If you use this option, you can selectively turn message monitoring ON/OFF for incoming *and/or* outgoing calls.
- Using Dial Access from a maintenance telephone (that is, a telephone that is MTA Class of Service). If you use this option (SPRE +9913), you must turn message monitoring ON/OFF for both incoming and outgoing calls at the same time.

To turn ON message monitoring from a maintenance telephone, dial

SPRE + 9913 + 1 + 03

To turn OFF message monitoring from a maintenance telephone, dial

SPRE + 9913 + 0 + 03

X11 Release 17 PMSI configuration

Configuration for the Background Terminal (BGD) and the Property Management System Interface (PMSI) ports for X11 Release 17 and earlier is provided in LD 17. The prompts are listed below.

Table 5
X11 Release 17 PMSI configuration

Prompt	Response	Explanation
REQ	CHG, END	Change data or terminate overlay.
TYPE	CFN	Configuration record.
IOTB	YES	Change input/output terminals or devices.
HIST	<CR>	History file buffer length.
ADAN	NEW, CHG, OUT TTY 0-15	Add, change, move, or remove an I/O device, type aaa, port x.
ESDI	<CR>	Not an ESDI port.
CDNO	0-15	SDI card number.
DENS	SDEN DDEN 4DEN	Single, double, or quad ports on SDI card.
USER	aaa aaa... BGD PMS	Enter one or more of the following terminal functions: Background Terminal. Property Management Interface.
CUST	xx	Customer number.
MANU	(PMSI) PMS2 PMS3	PMS interface type.
ADAN	<CR>	Add, change, move, or remove an I/O device, type aaa, port x.

X11 Release 18 PMSI configuration

Configuration for the Background Terminal (BGD) and the Property Management System Interface (PMSI) ports for X11 Release 18 and earlier is provided in LD 17. The prompts are listed below.

Table 6
X11 Release 18 PMSI configuration

Prompt	Response	Explanation
REQ	CHG, END	Change data or terminate overlay.
TYPE	CFN	Configuration record.
ADAN	YES	Change input/output terminals or devices.
HIST	<CR>	History file buffer length.
ADAN	NEW, CHG, OUT TTY 0-15	Add, change, move, or remove an I/O device, type aaa, port x.
ESDI	<CR>	Not an ESDI port.
CDNO	0-15	SDI card number.
DENS	SDEN DDEN 4DEN	Single, double, or quad ports on SDI card.
USER	aaa aaa... BGD PMS	Enter one or more of the following terminal functions: Background Terminal. Property Management Interface.
CUST	xx	Customer number.
MANU	(PMSI) PMS2 PMS3	PMS interface type.
ADAN	<CR>	Add, change, move, or remove an I/O device, type aaa, port x.

X11 Release 19 and later PMSI configuration

The X11 Release 19 and later PMSI Standardization retransmission and polling features are configured in LD 17; the message-monitoring feature is configured in LD 37. Printing of the configuration record is performed in LD 22.

Configuration prompts for LD 17

The seven new prompts for LD 17 are PMSI, PORT, PMCR, XTMR, XNUM, PMIN, and PTMR. These prompts are listed below.

Table 7
X11 Release 19 and later PMSI configuration

Prompt	Response	Explanation
REQ	CHG	Change data command.
TYPR	PARM	System parameters.
PMSI	(NO) YES	Modify PMSI data (refer to Note 1).
_MANU	PMS1 PMS2 PMS3	PMS interface type (refer to Notes 1 and 2).
PMCR	xx	Customer number.
USER	BGD PMS	PMSI port.
CUST	5-(60)-250 <25%>	The maximum number of call registers that can be used at any one time to store outgoing room status messages. 60 or 25% of system call registers as defined by NCR. 250 or 25% of system call registers. (Refer to Note 1.)
PORT	0-15 X	Primary PMSI port number. Enter 0-15 to define a primary PMSI port. Enter X to delete the existing primary PMSI port. (Refer to Note 1.)
XTMR	(0)-6	Retransmission timer, in seconds Enter 0 to turn OFF message retransmission. Enter 1 to 6 to turn ON message retransmission. (Refer to Notes 1 and 3.)
_XNUM	(1)-4	Maximum number of retransmissions for a single message
_PMIN	(NO) YES	Option to turn on minor alarm whenever retransmission is automatically disabled (Refer to Notes 1,3, and 4.)
PTMR	(0)-31	Polling timer, in minutes Enter 0 to turn OFF polling. Enter 1 to 31 to turn ON polling. (Refer to Notes 1 and 3.)

Note 1: If the response to the PMSI prompt is NO, prompts MANU, PORT, XTMR, XNUM, PMIN, and PTMR will not be given.

Note 2: MANU is an existing prompt that is now grouped with the PMSI prompts.

Note 3: If primary PMSI port is not defined, the prompts XTMR, XNUM, PMIN, and PTMR will not be given.

Note 4: If message retransmission is turned OFF (that is, XTMR is set to 0), the prompts XNUM and PMIN will not be given.

Configuration examples for LD 17

Three configuration examples are provided below:

Example 1

MANU	PMS3
PMCR	150
PORT	0

With this configuration,

- Meridian 1 will use PMS protocol 3.
- Up to 150 system call registers may be used to store output messages at any given time.
- No primary PMSI port is defined.

Example 2

MANU	PMS3
PMCR	150
PORT	1
_XTMR	0
_PTMR	0

With this configuration,

- Meridian 1 will use PMS protocol 3.
- Up to 150 system call registers may be used to store output messages at any given time.
- Port 1 is defined as the primary PMSI port.
- Message retransmission is OFF because the retransmission timer (XTMR) is set to 0.
- Polling is OFF because the polling timer (PTMR) is set to 0.

Example 3

MANU	PMS3
PMCR	150
PORT	1
_XTMR	0
_PTMR	2

With this configuration,

- Meridian 1 will use PMS protocol 3.
- Up to 150 system call registers may be used to store output messages at any given time.
- Port 1 is defined as the primary PMSI port.
- Message retransmission is OFF because the retransmission timer (XTMR) is set to 0.
- Polling is ON, and the polling timer is set to 2 minutes.

Example 4

MANU	PMS3
PMCR	150
PORT	1
_XTMR	2
_XNUM	2
_PMIN	YES
_PTMR	0

With this configuration,

- Meridian 1 will use PMS protocol 3.
- Up to 150 system call registers may be used to store output messages at any given time.
- Port 1 is defined as the primary PMSI port.
- Message retransmission is ON, and the retransmission timer is set to 2 seconds.
- Maximum number of retransmission attempts is set to 2.
- Whenever retransmission is automatically disabled, the attendant minor alarm will be turned on.
- Polling is OFF because the polling timer is set to 0.

Configuration commands for LD 37

Several new commands have been added to this maintenance LD to enable you to turn ON/OFF message monitoring for the primary PMSI port, and to specify the format of the message-monitoring output.

The new commands are listed below.

Command	Purpose
SET MON 0	Define output to be in alphanumeric format.
SET MON 1	Define output to be in hexadecimal format.
ENL MSGI	Turn ON monitoring of incoming messages from primary PMSI port.
ENL MSGO	Turn ON monitoring of outgoing messages to primary PMSI port.
DIS MSGI	Turn OFF monitoring of incoming messages from primary PMSI port.
DIS MSGO	Turn OFF monitoring of outgoing messages to primary PMSI port.
STAT MON	Display monitoring status.
	Format of the output for the STAT MON command is MSGI: ON/OFF MSGO: ON/OFF ALPH/HEX

Configuration example for LD 37

If you enter the following commands in LD 37:

```
ENL MSGI
ENL MSGO
SET MON 0
STAT MON
```

the message “MSGI: ON MSGO: ON ALPH”

is displayed to indicate that monitoring is ON for both incoming and outgoing messages. It also indicates that the message will be in alphanumeric format.

Configuration prompts for LD 22

The print program in LD 22 has been modified to include the new prompts, provided in LD 17.

Note 1: XTMR, XNUM, PMIN, and PTMR prompts are not printed if no primary PMSI port is defined (that is, PORT = NONE in LD 17).

Note 2: XNUM and PMIN are not printed if message retransmission is turned OFF (that is, XTMR = 0 in LD 17).

Configuration examples for LD 22

Examples of typical printouts are provided below:

Example 1

```
PMSI
_MANU      PMS3
_PMCR      60
_PORT      NONE
```

This is an example output of the configuration data when the primary PMSI port is defined.

Example 2

```
PMSI
_MANU      PMS3
_PMCR      60
_PORT      1
__XTMR     0
__PTMR     0
```

This is an example output of the configuration data when the primary port is defined; retransmission and polling are OFF for the primary PMSI port.

Example 3

PMSI	
_MANU	PMS3
_PMCR	60
_PORT	1
__XTMR	2
___XNUM	2
___PMIN	YES
___PTMR	2

This is an example output of the configuration data when the primary port is defined; retransmission and polling are ON for the primary PMSI port; attendant minor alarm is to be turned on whenever message retransmission is automatically disabled.

Operating parameters

Important PMSI operating parameters are listed below:

- The Meridian 1 supports one PMSI link.
- Activation of PMSI Standardization may require modifications to Property Management System software.
- When the Meridian 1 experiences initialization, sysload, or power failure, all output messages in the queue are lost.
- Setting Call register values for a typical application and a data swap are listed below.
- Call register recommendations for a typical scenario and a database swap scenario are provided below:

Typical scenario When using a typical application, it is recommended that you use the default (60) number of call registers. A typical application might consist of the following:

- A hotel with 8,000 guests, of whom 2,400 check out between 11 a.m. and 12 p.m. Cleaning status of 667 rooms is changed during this hour, with heavy traffic being generated, using, for example, the Maid ID and On Hook/Off Hook Detection features.

Database Swap scenario When performing database swap between the PMS and Meridian 1, it is recommended that you increase the number of call registers to the maximum (25% of system call registers).

- When the number of messages in the PMSI output queue exceeds the limit defined by the PMCR prompt in LD 17, the Meridian 1 discards the oldest message in the PMSI output queue and issues an error message. Refer to *X11 Software input/output guide* for a list of Meridian 1 and PMS error messages.
- Turn off the echo mode if the PMSI link is configured with a modem. If the echo code is turned on, characters may bounce back and forth between the modem and the Meridian 1, thus impacting the system processing and the dial tone rate.

Feature interactions

Important PMSI feature interactions are listed below:

- Multipurpose serial data link (MSDL)—serial data interface (SDI) application

With the X11 Release 19 and later MSDL-SDI feature, if the primary PMSI port is defined on an MSDL card and is attached to a modem that is not connected correctly, the MSDL-SDI driver will not send any output to, nor receive any input from, the primary PMSI port. The error message IOD332 is displayed to indicate the modem connection problem.

Because message transmission between the Meridian 1 and PMS is blocked, the Meridian 1 assumes that the primary PMSI port is experiencing a problem, and disables message retransmission automatically.

- Call Number Information Messages

Message retransmission applies to Call Number Information Messages (CNIM) in the same way that it applies to Room Status messages and the new polling message.

- Faster I/O buffer

In X11 Release 17, the Faster I/O Buffer feature increased the PMSI input buffer to accommodate incoming commands to the Meridian 1 that are no longer than 20 characters. Because PMSI Standardization applies only to outgoing messages to the PMS, it has no interaction with the Faster I/O Buffer feature.

- Attendant minor alarm

In LD 17, you can specify that the attendant minor alarm is turned ON when message retransmission is automatically disabled. Note, however, that if the attendant minor alarm is turned ON as a result of message retransmission being automatically disabled, the attendant alarm will not be automatically cleared when message retransmission is automatically reenabled.

PMSI Standardization recommendations

The following recommendations are provided for PMSI Standardization.

- 1** For those existing PMS systems that do not return <ACK> or <NAK> characters upon receiving a message from the Meridian 1, it is recommended that you turn OFF message retransmission in LD 17.
- 2** For those existing PMS systems that do not recognize the new polling message “ST PO,” message retransmission may become automatically disabled if polling is set to ON in LD 17.
- 3** If system call registers are heavily used for applications, such as call processing, Command Status Link (CSL), and PMSI link, it is recommended that you increase the number of call registers (NCR in LD 17) for the system accordingly.

Meridian 1

Property Management System Interface

Description

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Publication number: 553-2801-101

Document release: Standard 7.00

Date: August 1996

Printed in the United States of America

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